

UNCLASSIFIED

FOR ANNOUNCEMENT PURPOSES ONLY

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

①

## REPORT DOCUMENTATION PAGE

READ INSTRUCTIONS  
BEFORE COMPLETING FORM

1. REPORT NUMBER A 87-04	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) A Comparison of the Eigenvalue Method and the Geometric Mean Procedure for Ratio Scaling		5. TYPE OF REPORT & PERIOD COVERED Interim Report March 85 - March 86
		6. PERFORMING ORG. REPORT NUMBER --
7. AUTHOR(s) David V. Budescu, Rami Zwick, and Amnon Rapoport		8. CONTRACT OR GRANT NUMBER(s) MDA903-83-K-0347
9. PERFORMING ORGANIZATION NAME AND ADDRESS L.L. Thurstone Psychometric Laboratory, University of North Carolina Chapel Hill, NC 27514		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS 2Q161102B74F
11. CONTROLLING OFFICE NAME AND ADDRESS U.S. Army Research Institute for the Behavioral and Social Sciences, 5001 Eisenhower Avenue, Alexandria, VA 22333-5600		12. REPORT DATE December 1987
13. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office) --		13. NUMBER OF PAGES 10
		15. SECURITY CLASS. (of this report) Unclassified
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE n/a

DISTRIBUTION STATEMENT (of this Report)

FOR ANNOUNCEMENT PURPOSES ONLY

DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)

Approved for public release; distribution unlimited.

**DTIC**  
**ELECTE**  
**JUL 21 1988**  
**S D E**

## 18. SUPPLEMENTARY NOTES

Michael Drillings, contracting officer's representative  
 AVAILABILITY: Budescu, D.V., Zwick, R., and Rapoport, A. A Comparison of the Eigenvalue Method and the Geometric Mean Procedure for Ratio Scaling. Applied Psychological Measurement. Vol X, No. 1, March 1986. pp. 69-78.

## 19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

Scaling  
 Ratio Scaling  
 Scaling Techniques  
 Psychometrics  
 Geometric Mean Procedure  
 Eigenvalue Method  
 Psychological Measurement

## 20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

This article evaluates and compares the performance of two methods of ratio scaling: the eigenvalue method proposed by Saaty (1977, 1980), and the geometric mean procedure, advocated by Williams and Crawford (1980), when the methods are used on random data. The methods were examined in a series of Monte Carlo simulations for two response methods (direct estimation and constant sum), and for various numbers of stimuli and response scales. The sampling distributions of the measures of consistency of the two methods were tabulated, rules for

(OVER)

DD FORM 1 JAN 73 1473

EDITION OF 1 NOV 65 IS OBSOLETE

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

A 87-04 (Announcement Only)

20. Abstract (continued)

detecting and rejecting inconsistent respondents are outlined, and approximation formulas for other designs are derived.

Overall, there was a high level of agreement and correspondence between the results from the two scaling techniques, even when the data were random.

*Keywords - field 19*

Accession For	
DTIS GRA&I	<input checked="" type="checkbox"/>
DTIC TAB	<input type="checkbox"/>
Unannounced	<input type="checkbox"/>
Justification	
By <b>ARI</b>	
Distribution/	
Availability Codes	
Dist	Avail and/or Special
<b>A-1 21</b>	



UNCLASSIFIED